

ESEB OUTREACH FUND

From September 2010 onwards, ESEB has funded more than thirty projects via the ESEB Outreach Fund (<http://www.eseb.org/>). This fund is available globally to promote evolution-related activities, and these activities can be highly variable, from the translation of key textbooks, to websites, games, and teaching materials. The Outreach Committee has marvelled about the variety of proposals and the creativity that was shown. Together with the Lisbon organisation, we felt that the 2013 conference would provide an excellent opportunity to share all the great work and initiatives with you, the conference participants. Below you will find the abstracts for all the funded projects thus far (information also available on the ESEB website). In addition, a selection of the initiatives are further explained and highlighted at a special exhibition, near the Exhibition Area of the Congress. At the exhibition you will find posters with more background information, as well as some of the finished products. We hope you will enjoy all of this and appreciate the considerable efforts that participants have undertaken to expand information about evolution in the public realm. It is activities such as these that will let the world now about the importance of evolutionary biology research in understanding life on earth and how results from such research can be used to help solve problems societies face today.

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ABSTRACTS

March 2013

Plants and animals evolution in Madagascar

Applicants: **E. Carrió, A. Bonilla, A. M. Donnellan, E. Barona**

Funding provided: € 1000

Madagascar is well known for being one of the most important centers of biodiversity in the world, but population growth and economic crises have exacerbated the degradation and destruction of this unique ecosystem. It is urgent to communicate the importance of biodiversity to the malagasy population. This proposal will fund an educational workshop for children from the Tulear community of Madagascar. We will explain the evolutionary history of malagasy plants and animals using games, videos and posters, and a field lab. We also will produce a pamphlet containing activities about evolution in french and malagasy.

Brain Evolution in the News Video Podcasts

Applicant: **A. de Sousa**

Funding provided: € 1000

In this project, we will develop a video format to dramatize current research on brain evolution and include 'vodcast' interviews with scientists. The material will be posted on our website, [Brain Evolution In the News](http://brainevolutionnews.blogspot.co.uk) (<http://brainevolutionnews.blogspot.co.uk>). The target audience includes the general public (internet users), young people, and others fascinated by brain evolution. By making the videos freely accessible on the internet, we aim to be as inclusive as possible, and we will use social media, directories,

and search engines to maximize outreach.

Public Outreach to Improve Teaching of Evolutionary Biology in High Schools in Northern Ethiopia

Applicant: **T. Haileselasie**

Funding provided: € 2000

In Tigray in Northern Ethiopia, there is currently a lack of evolutionary biology reference material accessible in the local language (Tigrigna, ትግርኛ). We will hold an educational workshop with selected high school biology teachers and evolutionary biology experts. Evolutionary biology experts from three Universities in Tigray will present core concepts of evolutionary biology, misconceptions of evolutionary biology, and the contributions of evolutionary biology to our understanding of biology. Seminars from this workshop will then be summarized and translated into Tigrigna and printed in a booklet to be distributed to local high schools.

Interactive Tree of Life

Applicant: **B. Milutinovic**

Funding provided: € 700

This proposal funds the development of an interactive Tree of Life component to the online educational portal in Croatia for teaching of biology (www.bioteka.hr), a site aimed primarily for children and teenagers. Material on the evolution of life is currently scattered throughout the portal. This proposal will draw these articles altogether and make them readily accessible by placing the articles, as appropriate, on the Tree of Life according to the geological time-scale, from the beginning of the universe and formation of the first cells to the evolution of different taxa. In this way, the Tree would significantly aid understanding of the evolutionary history of life. This educational portal is currently the only online portal in Croatia (as well as in Serbia, Montenegro, Bosnia & Herzegovina) written by academically educated experts where children can read and learn about the evolution of life.

Popularizing Evolution in China

Applicant: **L. Shu**

Funding provided: € 1500

This outreach initiative will translate ESEB's "Evolution Matters: A Guide to the Creationism/Evolution Controversy" into Chinese. This translation will provide access to this material for more than 1.3 billion Chinese speaking people. In addition, we will collaborate with online media & social networking websites to draw more attention to and interest in evolution, especially among the younger generations in China.

Shimmying the Science of Sex: Communicating Research via the Platform of the Arts

Applicant: **C. Tan**

Funding provided: € 1000

Using a combination of original dance choreography, original music and humor, our team aims to promote the highlights of cutting-edge research in evolution to high school students, non-scientists and artists through in an instinctive yet creative manner through a video that will leave a lasting impression. This new artistic piece will illustrate the evolutionary consequences of kinship for sexual conflict and competition through movements inspired by competitive sports. Together with our previous award-winning videos, our new video will be actively promoted via social media sites, posters, presentations and

live performances at educational institutes and theatres

September 2012

Evolutionary theory in the modern world

Applicant: **A. Chernenko**

Funding provided: € 1300

Funds will be used to present a seminar about the history of evolutionary thinking in Eastern Kazakhstan, where few resources on evolutionary biology currently exist. The seminar will be followed by a movie, which will be developed using ESEB Outreach funds and prepared in collaboration with local teachers. The movie will describe the core ideas in evolutionary biology and will present short biographies of some of the scientists behind these ideas. The movie (in Russian with English subtitles) will be made available on line, so that teachers and the public will have continued access to the movie.

Origin of life and its continuity

Applicant: **N. Haraprasad, B. Manoj Kumar, Hema B.P.**

Funding provided: € 1500

This outreach project aims to increase awareness and knowledge about evolutionary theory among school children and undergraduate students in India. A poster contest will be held on the topic of "Evolutionary biology in the 21st century". The students submitting the 10 best posters, judged by experts in the field of evolutionary biology, will then be mentored by the experts to further develop their posters in English such that the posters clearly explain core concepts in evolution. These posters will then be professionally printed, framed, and presented to ~300 high school students at 3 different schools in and around Mysore.

BioBelize

Applicant: **S. Harris**

Funding provided: € 1500

Belize is a developing country lacking sufficient funds for quality science education, but it also contains some of the most diverse ecosystems in the world including one of the largest coral reefs. Innovative, inquiry-based science curriculum is needed to increase students' interest in STEM fields and create authentic research opportunities to develop the human capital in Belize.

BioBelize addresses this need by teaching high school science students in Belize the techniques of DNA extraction, PCR, and gel electrophoresis, and then trains local science teachers to work with their students in creating original research. Using a basic lab set up, students will learn modern tools used by evolutionary biologists to answer questions about biodiversity and the evolutionary history of organisms. While preparing students to enter into science oriented careers, the results will be publicized in Belize through newspaper articles, local TV, and documented on the programs website, www.biobelize.org.

Galápagos: islands that changed the world

Applicant: **L. Keller**

Funding provided: € 1500

The Galápagos islands, with their fascinating and unique biodiversity, were an important source of inspiration for Charles Darwin and for many scientists that followed and are consequently protected as a UNESCO world heritage site. The Galápagos badly need this protection: invasive plants and animals

threaten their unique biodiversity. This project will develop a traveling museum exhibit to raise awareness of the unique biodiversity of the Galápagos, the process of evolution that created it, and the role that these islands play in evolutionary biology. The target audience are families with children aged 10-14. It will be produced initially in English and German but can easily be adapted to other languages.

Understanding evolutionary biology: an initiative to improve the teaching of evolution in Chilean high schools

Applicants: **M. A. Méndez, S. Faugeron, C. Botto, and R. Medel**

Funding provided: € 1500

The aim of this project is to provide high school teachers (K-12) with the basic tools to improve their teaching capacity in evolutionary biology. Since evolution textbooks in Spanish are almost absent for high school use in Chile, we will develop a free e-book that illustrates the basic concepts and clarifies common misconceptions about evolution. This activity will be carried out by the Sociedad Chilena de Evolución (SOCEVOL), whose mission is to promote evolutionary thinking and improve the teaching of evolution in Chile.

Raising Awareness about Evolutionary Theory and its Relevance to Biodiversity Conservation and Human Health and Disease in Madagascar

Applicant: **J.-E. Rakotoarisoa**

Funding provided: € 1000

Although Madagascar is widely viewed as a natural laboratory for the study evolution, evolutionary biology is not a part of most curricula in Madagascar. The goal of this project is to raise awareness about the importance and relevance of evolution, particularly with respect to biodiversity conservation and human health and disease. This goal will be achieved through three activities: 1) workshops and seminars at major universities; 2) public outreach seminars and exhibitions; and 3) translation of relevant outreach materials from various sources to French and Malagasy.

Laugh and Learn

Applicant: **V. Rossetti, M. Griesser, and M. Kölliker**

Funding provided: € 1000

Funds will be used to develop a series of comic strips that convey key concepts in evolutionary biology to the general public in an easy, attractive, and fun way. A particular focus will be on the importance of cooperative behaviour in the evolution of living organisms. Scientists and artist will work collaboratively to develop effective take-home messages that are then turned into comic strips. These comic strips will initially be targeted to free newspapers in Switzerland and then will be made available on-line (in English and in German).

March 2012

Little Changes

Applicant: **T. Taylor, United Kingdom**

Funding provided: € 2000

"Little Changes" is a children's book which will be an aide for primary school teachers looking to introduce the topic of evolution. The book will be freely available online, as a free e-book, and a limited run print

version will also be produced for distribution to school science coordinators. Important principles are subtly introduced – such as variation, survival of the fittest, heritability and adaptation – in a way that would be easily comprehensible by both primary school children and their teachers. This book will also be coupled with online activities based around the characters, reinforcing the themes introduced in the book.
→ The virtual book can be read [here](#).

Short video teasers on evolution

Applicants: **P. Capy and S. Salamitou, France**

Funding provided: € 2000

Funding will be used to develop very short films dedicated to evolution. These video vignettes will carry a simple message about evolution and will be illustrated by various means (cartoons, graphics, images, etc.). It is crucial that scientists be able to deliver clear messages about evolution in a manner that captures the attention of the audience and that is able to deliver simple but important messages. The films will be available on-line in French and in English. The target audience includes teachers, who could use our films as the basis for lessons or discussions.

→ The four short films can be watched [here](#) (French version).

Tree of Evolution Movement

Applicants: **Ç. Bakırcı and B. Erdem, Turkey**

Funding provided: € 2000

Funds will be used to hold seminars and workshops on evolution in Turkey, improving the dissemination of information about evolution throughout the country. With support from the METU Biology and Genetics Society, five events are planned in various Turkish cities, involving workshops and question-and-answer sessions about evolutionary biology. In addition, ESEB Outreach funds will be used for website development to improve access to information in Turkish about evolutionary principles and to serve as a forum for dialogue with the community about evolutionary questions (www.evrimagaci.com/; "Evrım Ağacı" meaning "Tree of Evolution").

September 2011

I have a question ... and may have the answer! - a book about Evolution

Applicant: **R. Campos, Portugal**

Funding provided: € 2000

The goal of the activity is to produce a book about evolutionary biology based on questions and answers obtained directly from children. These questions and answers will be obtained through a contest open to children aged between 5 to 17 years old. Expert comments and answers will also be provided for each question. The book will be freely available on the web (in Portuguese and English) and a limited run print version will also be produced (in Portuguese). This activity will help address the scarcity of educational resources about evolution available in Portuguese for children as well as for anyone who is interested in biodiversity and evolution.

The Evolution of Evolutionary Thought

Applicant: **T. Jenkins et al., Switzerland**

Funding provided: € 2000

The aim of this project is to trace the evolution of evolutionary thought from pre-Darwinian times to the present in a visually striking way, producing a web-based "infographic" (available in French, Spanish, and German) and associated poster. Standing at the intersection of science and art, this infographic will show through an innovative use of colour, text and graphics how selected evolutionary theories have themselves evolved. By integrating design and content, our aim is to show, directly and visually, how evolution by natural selection has come to be established and reveal the beauty underlying evolutionary theory.

Unnatural History: What bizarre biology can teach us about evolution

Applicant: **L. Loewe et al., United States**

Funding provided: € 1000

In celebration of Darwin Day 2012, the University of Wisconsin, Madison, holds a public outreach event that combines a variety of activities to engage the public in interesting conversations about evolution. This proposal funds a workshop for high school teachers associated with the event, where faculty and staff from the J.F. Crow Institute share their expertise with local educators. The workshop will both enhance their knowledge-base and provide them with three specific activities that they can implement in their classrooms. We believe that by working with high school teachers we can have a much amplified effect on the public understanding of evolution and science in general.

→ The web site of the event can be found [here](#).

Improving Understanding of Evolutionary Concepts for Secondary School Teachers

Applicant: **F. Rizinjirabake and E. Kalisa, Rwanda**

Funding provided: € 1500

This project aims to offer a better understanding of evolutionary biology to teachers of evolution biology in Rwandan high schools. We will organize provincial workshops for Rwandan high school evolutionary biology teachers, reviewing evolutionary processes and discussing common misconceptions of evolution. We will also develop an evolutionary biology module syllabus to provide to participants, who currently lack evolutionary biology books or materials for use in their classrooms.

Whale of a Tail: What Skeletons Tell Us about Marine Mammal Evolution

Applicant: **A. Stewart and H. Kucera, Canada**

Funding provided: € 2000

A major challenge when teaching evolution is the need for appealing examples that are visual, clear and concrete. The diverse collection of marine mammal skeletons at the Bamfield Marine Sciences Centre (BMSC) will be used to demonstrate the evolution of mammalian adaptations to the marine environment. We will develop high school focused labs through a "virtual lab" to be delivered by videoconference, as well as a set of photos and text to be used in an interactive website. The goal is to provide access for students and teachers around the world with the unique opportunity to see adaptation and convergence in bone structure over the evolutionary history of marine mammals.

March 2011

Bringing Awareness about Evolutionary Theory to the Academic Community and General Public of North Sulawesi, Indonesia

Applicant: **P.J. Tasirin, Pacific Institute, North Sulawesi, Indonesia**

Funding provided: € 2000

Evolutionary theory is not a part of most curricula in Indonesia, even at the university level.

Consequently, the mechanisms of evolution by natural and sexual selection remain poorly understood. This outreach project aims to increase awareness and knowledge about evolutionary theory and about Indonesia's own evolutionary heritage.

The outreach efforts will involve

1. Workshops and field trips aimed at high school students
2. Seminars aimed at university students and scientists
3. Public outreach seminars within the community

To supplement these oral presentations, ESEB Outreach funding will support the creation and exhibition of different media representations of evolution (posters, movies and interactive maps) as well as hands-on activities (e.g. comparative morphology of Sulawesi macaques). Field trips will introduce students to concrete examples of evolution by sexual selection (e.g. macaques and hornbills).

Spanish-Language Translation of "Evolution in the News"

Applicant: **J.P. Weintraub, Durham, NC, USA**

Funding provided: € 2500

This outreach project will translate the existing "Evolution in the News" stories and video podcasts (see here: <https://www.nescent.org/eog/podcasts.php>) from English into Spanish so that they can be disseminated to Spanish speaking students throughout the world, in collaboration with the National Evolutionary Synthesis Center ([NESCent](#)). This collection of stories about recent breakthroughs in evolutionary biology and evolution's applications to society includes links to background literature and classroom resources, as well as short (7-10 minute) video podcasts featuring interviews with scientific experts.

→ The Spanish version of "Evolution in the News" can be found [here](#).

Evolutionary games with everyday materials - activities for primary and secondary school teachers and students

Applicants: **R. Guidetti, M. Bisanti, A. Pederzoli, Modena, Italy**

Funding provided: € 2000

This project aims to develop a series of 20 games and activities using everyday materials (e.g. straws and pins) that demonstrate evolutionary principles. The games will be aimed at primary and secondary students, with sufficient instruction to be used directly by educational staff without expert assistance.

Activities and instructions will be made available at [Pikaia](#) (www.pikaia.eu; the first Italian website entirely devoted to evolutionary topics) in both Italian and English. Educational materials will also be promoted in workshops targeted at teachers and students, in collaboration with [Memo Educational Centre](#).

September 2010

Evolutionary outreach: tools for the analysis of evolutionary concepts for high-school teachers

Applicants: **Massarini et al., Buenos Aires, Argentina**

Funding provided: € 1750

This outreach initiative will promote a better understanding of evolutionary biology among spanish-speaking high school teachers through distance learning courses and regional workshops in Argentina. The distance learning courses will be web-based and will develop a deeper understanding about evolutionary processes, as well as exploring common misconceptions about evolution. The workshop will bring members of the "Sharing Science" group to two locations in Argentina to train teachers in the use of evolutionary modules in the classroom.

Seavolution

Applicants: **Anseeuw et al., Roesselare, Belgium**

Funding provided: € 2000

This project targets secondary school students in Belgium to teach key evolutionary concepts: variation (between and within species); selection (natural and artificial); and convergent evolution. One component, Seavolution@class, will provide course packages for three self-contained experiments. A second component, Seavolution@lab, offers secondary school students to participate in hands on workshops, using marine organisms to teach evolutionary concepts. A third component, Seavolution@seminar, will host a public seminar by a specialist on evolution of marine organisms in response to natural and anthropogenic selection.

→ The web site can be found [here](#).

Evolution Matters: A translated guide

Applicant: **Hugo Gante, Basel, Switzerland**

Funding provided: € 1500

The purpose of this funding is to translate ESEB's "Evolution Matters: A Guide to the Creationism/Evolution Controversy" into Portuguese. This guide provides extensive information about the evidence for evolution and addresses widespread misunderstandings about evolution. Its translation into Portuguese will extend the reach and value of this already-developed website.

A Comparative Embryonic Developmental Database

Applicants: **Eric Rottinger and Mattias Ormestad, Eze sur mer, France**

Funding provided: € 3000

The funds will be used to build a comparative embryonic developmental database with freely accessible information about variation in animal development and its relation to metazoan evolution. The proposed database will be implemented in an existing platform (<http://www.kahikai.org/>) and will serve as an illustrated atlas allowing the public to visualize developmental variation among metazoans and to place this information easily into a phylogenetic context. The website will be easily accessible to teachers, students, as well as to the general public.

March 2010

Bringing the understanding of evolution to Turkish primary schools

Applicants: **B. Duygu Özpolat and Erol Akçay, Tulane, USA**

Funding provided: € 1700

This outreach initiative will allow the non-profit organization *Hard-workers for Evolution* to distribute informational packets to science teachers in Turkey associated with the Turkish translation of the

[Understanding Evolution](#) website. This information package will include a brochure about evolution and a CD containing an offline version of the website (<http://evrimianlamak.org> in Turkish), as well as printable website articles.

→ [blog](#) and [brochure](#)

Evolving Evolutionary Ideas

Applicants: **Rita Campos and Alexandra Sá Pintos, Vairão, Portugal**

Funding provided: € 2000

Funding from ESEB will allow the development of teaching kits for use in Portuguese elementary schools, where evolutionary concepts are currently not taught. Funding will be used to develop and build 20 kits and to pay for travel expenses of visits with the kits to schools during the school year. The kits will include flower seeds to demonstrate genetic drift, buttons and plastic pearls with different colours to demonstrate natural selection, cards with images of different organisms to demonstrate how taxonomy relates with evolution, small mirrors and genealogical trees to demonstrate the heritability of characters.

→ [blog "O Jogo da Evolução/Playing Evolution"](#) and [report of activities](#)

Twelve Spotlights on Evolution

Applicants: **Sylvie Salamitou and Dominique Joly, Gif-sur-Yvette, France**

Funding provided: € 3000

An award from the ESEB Outreach fund will allow the development of an exhibition entitled "Twelve spotlights on Evolution" composed of 12 posters. Each poster will include photographs and short descriptions that illuminate an important aspect of evolution. This exhibition will present both basic notions of evolution and up-to-date research results, explained in a very accessible way and designed to interest a general audience. The posters will be displayed to the general public at scientific events and at places such as student libraries and shopping malls in the Paris area.

→ The 12 posters are completed: [Poster 1](#); [Poster 2](#); [Poster 3](#); [Poster 4](#); [Poster 5](#); [Poster 6](#); [Poster 7](#); [Poster 8](#); [Poster 9](#); [Poster 10](#); [Poster 11](#); [Poster 12](#)

References [Poster 13](#). If you are interested in the pdf files, please contact [Sylvie Salamitou](#)

A philosopher in nature. Evolutionary theory explained to children.

Applicants: **Johan Braeckman and Johan De Smedt, Gent, Belgium**

Funding provided: € 2500

A large empirical literature in educational psychology indicates that children and adolescents hold false beliefs about evolutionary biology. Given the importance of educational materials in the home environment, there is a need for children's books that explain evolution and natural selection in simple terms [See website example at www.evolutietheorie.be]. Funding from the ESEB Outreach Fund will allow the illustration of a children's book designed to convey ideas like natural selection and descent with modification, to be distributed at least to primary schools in Flanders, Belgium and The Netherlands. The book will initially be written in Dutch and available for translation.